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TI A DNA and preparation of a protein by using it.

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AB JP2000102390 A UPAB: 20000617

NOVELTY - A genomic DNA encoding a protein having an activity of supporting or promoting differentiation and maturation of osteoclasts, is new.

DETAILED DESCRIPTION - A genomic DNA encoding a protein having the following properties:

(a) combines specifically with **osteoclastogenesis inhibitory factor (OCIF)** and has a high affinity ( the dissociation constant Kd on the cell membrane is 10<sup>-9</sup> or lower );

(b) shows a molecular weight (mw) of 30,000 to 40,000 by SDS-PAGE (sodium dodecyl sulfate-polyacrylamide gel electrophoresis) under a nonreductive condition and the apparent mw when crosslinked with monomer type **OCIF** is 90,000 to 110,000;

(c) has an activity of supporting or promoting differentiation and maturation of osteoclast in the co-culture of mouse osteoblast-like stroma cell and mouse spleen cell in the presence of a bone absorption promoting factor such as active type vitamin D3 and parathroid hormone (PTH).

INDEPENDENT CLAIMS are also included for the following:

(1) a method for the preparation of a protein having the above properties in which the above DNA is inserted to an expression vector to prepare it by a gene engineering method;

(2) a method for screening a substance inducing and/or inhibiting the expression of a protein; and

(3) an **OCIF**-binding molecule (OBM), having the above properties by using the above DNA.

USE - The protein is useful as a drug and a research reagent.

**DNA AND PRODUCTION OF PROTEIN USING THE SAME**

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Equivalents:

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**Abstract**

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**PROBLEM TO BE SOLVED:** To obtain a new DNA for producing a protein having activity of supporting or promoting differentiation and maturation of osteoclast, useful for a medicine for treating bone dysbolism, a reagent for study, etc., comprising a genome DNA encoding the protein.

**SOLUTION:** This new genome DNA encodes a protein having the following physicochemical properties.

**Affinity:** specifically combining with an osteoclastogenesis inhibitory factor(OCIF), having a high affinity (dissociation constant on a cell membrane, kd value is  $\leq 10^{-9}$ ). Molecular weight: about 30,000-40,000 by molecular weight measurement by SDS polyacrylamide electrophoresis under a nonreducing condition.

**Bioactivity:** having activity of supporting or promoting differentiation or maturation of osteoclast by coculture of mouse osteoblast-like stroma cell and mouse splenocyte in the presence of bone resorption promoting factor such as activated vitamin D3 and parathormone, etc. The genome DNA is useful as a prophylactic and a therapeutic agent for bone dysbolism such as osteoporosis, etc.

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